

## 5 CLAIMS

## WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
  - 10 (a) a polynucleotide fragment of SEQ ID NO:1 or a polynucleotide fragment of the cDNA sequence included in ATCC Deposit No: PTA-2676, which is hybridizable to SEQ ID NO:1;
  - (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:2 or a polypeptide fragment encoded by the cDNA sequence included in ATCC Deposit No:
    - 15 PTA-2676, which is hybridizable to SEQ ID NO:1;
    - (c) a polynucleotide encoding a polypeptide domain of SEQ ID NO:2 or a polypeptide domain encoded by the cDNA sequence included in ATCC Deposit No: PTA-2676, which is hybridizable to SEQ ID NO:1;
    - (d) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:2 or a
      - 20 polypeptide epitope encoded by the cDNA sequence included in ATCC Deposit No: PTA-2676, which is hybridizable to SEQ ID NO:1;
      - (e) a polynucleotide encoding a polypeptide of SEQ ID NO:2 or the cDNA sequence included in ATCC Deposit No: PTA-2676, which is hybridizable to SEQ ID NO:1, having caspase binding activity;
      - 25 (f) a polynucleotide which is a variant of SEQ ID NO:1;
      - (g) a polynucleotide which is an allelic variant of SEQ ID NO:1;
      - (h) an isolated polynucleotide comprising nucleotides 1323 to 2666 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 449 of SEQ ID NO:2 minus the start codon;
      - 30 (i) an isolated polynucleotide comprising nucleotides 1320 to 2666 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 1 to 449 of SEQ ID NO:2 including the start codon;
      - (j) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:1; and
      - 35 (k) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(j), wherein said polynucleotide does not

- 5 hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.
2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a human leucine-rich repeat protein.
- 10 3. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.
4. A recombinant host cell comprising the vector sequences of claim 3.
5. An isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:
- 15 (a) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2676;
- (b) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2676, having caspase binding activity;
- (c) a polypeptide domain of SEQ ID NO:2 or the encoded sequence included
- 20 in ATCC Deposit No: PTA-2676;
- (d) a polypeptide epitope of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2676;
- (e) a full length protein of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2676;
- 25 (f) a variant of SEQ ID NO:2;
- (g) an allelic variant of SEQ ID NO:2;
- (h) a species homologue of SEQ ID NO:2;
- (i) a polypeptide comprising amino acids 2 to 449 of SEQ ID NO:2, wherein said amino acids 2 to 449 comprise a polypeptide of SEQ ID NO:2 minus the start
- 30 methionine;
- (j) a polypeptide comprising amino acids 1 to 449 of SEQ ID NO:2; and
- (k) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-2676.
6. The isolated polypeptide of claim 5, wherein the full length protein
- 35 comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

- 5           7.       An isolated antibody that binds specifically to the isolated polypeptide  
of claim 5.
8.       A recombinant host cell that expresses the isolated polypeptide of  
claim 15
9.       A method of making an isolated polypeptide comprising:
- 10       (a) culturing the recombinant host cell of claim 8 under conditions such that  
said polypeptide is expressed; and
- (b) recovering said polypeptide.
10.      The polypeptide produced by claim 9.
11.      A method for preventing, treating, or ameliorating a medical condition,  
15 comprising the step of administering to a mammalian subject a therapeutically  
effective amount of the polypeptide of claim 5 or the polynucleotide of claim 1.
12.      A method of diagnosing a pathological condition or a susceptibility to  
a pathological condition in a subject comprising:
- (a) determining the presence or absence of a mutation in the polynucleotide of  
20 claim 1; and
- (b) diagnosing a pathological condition or a susceptibility to a pathological  
condition based on the presence or absence of said mutation.
13.      A method of diagnosing a pathological condition or a susceptibility to  
a pathological condition in a subject comprising:
- 25       (a) determining the presence or amount of expression of the polypeptide of  
claim 5 in a biological sample; and
- (b) diagnosing a pathological condition or a susceptibility to a pathological  
condition based on the presence or amount of expression of the polypeptide.
14.      A process for making polynucleotide sequences encoding a gene  
30 product having altered caspase binding activity comprising,
- a) shuffling a nucleotide sequence of claim 1,
- b) expressing the resulting shuffled nucleotide sequences and,
- c) selecting for altered caspase binding activity as compared to the  
caspase binding activity of the gene product of said unmodified nucleotide sequence.
- 35       15.      A shuffled polynucleotide sequence produced from the process of  
claim 14.

- 5           16.     An isolated nucleic acid molecule comprising a polynucleotide having  
a nucleotide sequence selected from the group consisting of:
- (a) a polynucleotide encoding a polypeptide of SEQ ID NO:2;
- (b) an isolated polynucleotide comprising nucleotides 1323 to 2666 of  
SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino  
10   acids 2 to 449 of SEQ ID NO:2 minus the start codon;
- (c) an isolated polynucleotide comprising nucleotides 1320 to 2666 of  
SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino  
acids 2 to 449 of SEQ ID NO:2 including the start codon;
- (d) a polynucleotide encoding the HLRRBM1 polypeptide encoded by  
15   the cDNA clone contained in ATCC Deposit No. PTA-2676; and
- (e) a polynucleotide which represents the complimentary sequence  
(antisense) of SEQ ID NO:41.
- 20           17.     The isolated nucleic acid molecule of claim 16, wherein the  
polynucleotide comprises a nucleotide sequence encoding a human leucine-rich repeat  
protein.
18.     A recombinant vector comprising the isolated nucleic acid molecule of  
claim 16.
19.     A recombinant host cell comprising the recombinant vector of claim  
18.
- 25           20.     An isolated polypeptide consisting of an amino acid sequence selected  
from the group consisting of:
- (a)     a polypeptide fragment of SEQ ID NO:2 having caspase binding  
activity;
- (b)     a polypeptide domain of SEQ ID NO:2 having caspase binding  
30   activity;
- (c)     a full length protein of SEQ ID NO:2;
- (d)     a polypeptide corresponding to amino acids 2 to 449 of SEQ ID NO:2,  
wherein said amino acids 2 to 449 comprise a polypeptide of SEQ ID NO:2 minus the  
start methionine;
- 35           (e)     a polypeptide corresponding to amino acids 1 to 449 of SEQ ID NO:2;  
and

5 (f) a polypeptide encoded by the cDNA contained in ATCC Deposit No.  
PTA-2676.

21. The method for preventing, treating, or ameliorating a medical  
condition of claim 11, wherein the medical condition is a proliferative disorder.

22. The method for preventing, treating, or ameliorating a medical  
10 condition of claim 11, wherein the medical condition is an immune condition.

23. The method for preventing, treating, or ameliorating a medical  
condition of claim 11, wherein the medical condition is disorder related to aberrant  
apoptosis modulation, either directly or indirectly.